

SEQUENCE LISTING

<110> MOULLIER, Phillippe
DANOS, Olivier
HEARD, Jean-Michel
FERRY, Nicholas

<120> BIOCOMPATIBLE IMPLANT FOR THE EXPRESSION AND IN VIVO
SECRETION OF A THERAPEUTIC SUBSTANCE

<130> 0660-0145-0DIV

<140> 09/225,509

<141> 1999-01-06

<150> PCT/FR94/00456

<151> 1994-04-21

<150> 09/523,814

<151> 1996-01-19

<150> FR 93/04700

<151> 1993-04-21

<150> FR 93/09185

<151> 1993-07-26

<160> 1

<170> PatentIn Ver. 2.1

<210> 1

<211> 8388

<212> DNA

<213> mus musculus, Mo-MuLV, and other

<400> 1

tgaaaagaccc	cacctgtagg	tttggcaagc	tagcttaagt	aacgccattt	tgcaaggcat	60
ggaaaaatac	ataactgaga	atagagaagt	tcagatcaag	gtcaggaaca	gatggaacag	120
ctgaatatgg	gccaaacagg	atatctgtgg	taagcagttc	ctgccccggc	tcagggccaa	180
gaacagatgg	aacagctgaa	tatgggccaa	acaggatata	tgttgtaagc	agttcctgcc	240
ccggctcagg	gccaaagaac	gatggtcccc	agatgcggtc	cagccctcag	cagttttctag	300
agaaccatca	gatgtttcca	gggtgccccca	aggacctgaa	atgacctgtg	gccttatttg	360
aactaaccaa	tcagttcgct	tctcgcttct	gttcgcgcgc	ttctgctccc	cgagctcaat	420
aaaagagccc	acaacccctc	actcggggcg	ccagtcctcc	gattgactga	gtcgcccggg	480
taccogtgta	tccaataaac	cctcttgca	ttgcatccga	cttgtggtct	cgctgttcct	540
tgggagggtc	tcctctgagt	gattgactac	ccgtcagcgg	gggtctttca	tttgggggct	600
cgtccgggat	cgggagaccc	ctgcccaggg	accaccgacc	caccaccggg	aggtaagctg	660
gcgcgaact	tatctgtgtc	tgtccgattg	tctagtgtct	atgactgatt	ttatgcgcct	720
gcgtcgggtac	tagtttagcta	actagctctg	tatctggcgg	accogtggtg	gaactgacga	780

gttcggaaca	cccgccgcga	accctgggag	acgtcccagg	gacttcgggg	gccgtttttg	840
tggcccgacc	tgagtcacaa	aatcccgatc	gttttggaact	ctttgggtgca	cccccccttag	900
aggaggagata	tgtgggtctcg	gtaggagacg	agaacctaaa	acagttcccg	ctcccgctcg	960
aatttttgct	ttcggtttgg	accggaagcc	gcgcgcgcgc	tcttgctcgc	tgagcatcg	1020
ttctgtgtg	ttctgtgtct	gactgtgttc	tgtatttgc	tgagaatatg	ggcccgccgg	1080
ccagactgtt	accactccct	taagttttgac	cttaggtcac	tggaaagatg	tcgagcggat	1140
cgtcacaac	cagtcggtg	gatgcaagaa	gagacgttgg	gttactctct	gctctgcaga	1200
atggccaacc	tttaacgtcg	atgtggccgcg	agacggccac	tttaaccgag	acctcatcac	1260
ccaggttaag	atcaaggtct	tttcacctgg	cccgcactga	caaccagacg	aggtccctca	1320
catcgtgac	tgggaagcct	tggcttttga	ccccctccc	tgggtcaagc	ctttgtaca	1380
ccctaagcct	ccgctctctc	ttctccatc	cgccccgtct	ctcccccttg	aacctectcg	1440
ttcgaccccg	cctcgatcct	ccctttatcc	agccctcact	ccttctctag	gcgccccaac	1500
taaacctcaa	gttctttctg	acagttggggg	gccgctcatc	gactacttta	cagaagaacc	1560
cccgcccttat	agggacccaa	gaccaccccc	ttccgacagg	gacggaaatg	gtggagaagc	1620
gaccctcgcg	ggagaggcac	cggacccctc	cccaatggca	tctcgctac	gtgggagagc	1680
ggagccccct	gtggccgact	ccactacctc	gcaggcattc	ccctcccgcg	caggaggaaa	1740
cggaagcgtt	caataactggc	cgttctctct	ttctgacctt	tacaactgga	aaaaataata	1800
cccttctttt	tctgaagatc	caggtaaac	gacagctctg	atcgagtcgt	ttctcatcac	1860
ccatcagccc	acctgggaag	actgtcagca	gctgttgggg	actctgctga	ccggagaaga	1920
aaacaaacgg	gtgctcttag	aggctagaaa	ggcggtgcgg	ggcgatgatg	ggcgccccac	1980
ttcaactgccc	aatgaagctg	atcgccgttt	tccccctcag	aattctaccg	ggtaggggag	2040
ggcgttttcc	caaggcagtc	tggagcatgc	gctttagcag	cccgcgtggc	acttggcgct	2100
agacaaagtgg	cctctggcct	cgcacacatt	ccacatccac	cggtagcgcc	aaccggctcc	2160
gtcttttgggt	ggccctctcg	cgccacattc	taactcctcc	ctagtcagga	agttcccccc	2220
ggcccgacgc	tcgcgtctg	caggacgtga	caaagtgaag	tagcacgtct	ccatagctct	2280
gtgcagatgg	acagcacccg	tgagcaatgg	aagcggttag	gcctttgggg	cagcgcccaa	2340
tgacagcgtt	gctccttcgc	tttctgggct	cagaggctgg	gaaggggtgg	gtccgggggg	2400
ggcgtcaggg	gcgggctcag	gggcggggcg	ggcggaagg	tcctccggag	cccgccatcg	2460
tgacagcgttc	aaaagcgcac	gtctgcgcgc	ctgttctct	cttcttcac	tcggggcctt	2520
tcgaccggat	ccggcgattta	gtccaatttg	ttaaagacag	gatatacagt	gtccagggtc	2580
tagtttttgac	tcaacaatat	caccagctga	agcctataga	gtacagcca	tagataaaat	2640
aaaagatttt	atttagtctc	cagaaaaagg	ggggaatgaa	agacccacc	tgtagggtttg	2700
gcaagctagc	ttaaagttaac	ccatttttga	aggcatggaa	aaatacataa	ctgagaatatg	2760
agaagttccag	atcaaggctca	ggaacagggtc	gaacagggtc	gaccttagag	aacctcagaa	2820
tgtttccagg	gtgccccaa	gacctgaaat	gacctgtg	cttatttgaa	ctaaccaatc	2880
agttgcgttc	tcgcttctg	tcgcgcgctt	ctgctccccg	agctcaataa	aaagccccac	2940
aacctctcac	tcggggcgcc	agtcctccga	ttgactgagt	cgccgggtga	cccggtgatc	3000
caataaaacc	tcttgagtt	gcacccgact	tgtggtctcg	ctgttctctg	ggagggtctc	3060
ctctgagtg	ttgactaccc	gtcagcgggg	gtctttcatt	tatgtgtcat	aaatatctct	3120
aattttaaaga	tagtatctcc	attgcttttc	tactttttct	ttttgtctct	ttttgtctct	3180
tgtctccatg	tggtgtgtt	gttgtttgtt	tggtgtgtt	ttgtgtgtt	ggtttaatttt	3240
ttttttaaaga	tcctacacta	tagttcaagc	tagactatta	gctactctgt	aaccagggtt	3300
gaccttgagg	tactgggttg	ctcgtgtgtt	tagccttccc	acatctaaaga	ttacagggat	3360
gagctatcat	tttggtatat	tgattgattg	attgattgat	gtgtgtgtgt	gtgattgtgt	3420
ttgtgtgtgt	gattgtgtat	atgtgtgtat	gggtgtgtgt	gattgtgtgt	atgtatgttt	3480
gtgtgtgtat	gtgtgtgtgt	gtgtgtgc	gtgtgtgtgt	gatgtgtgtg	gtgtgattgt	3540
tgtgtgtgtg	tgtgtgtgtg	tgtgtgtgtg	tgtgtgtgtg	tgtgtgtgtg	gtatatatat	3600
ttatggtagt	gagaggcaac	gctccggccc	aggcgtcagg	ttgtgttttg	agacagagtc	3660
tttccattag	cttgaattct	tgaagacgaa	aggccctcgt	gatacgcccta	tttttatagg	3720

ttaatgtcat	gataataatg	gtttcttaga	cgtcaggtgg	cacttttcgg	ggaaatgtgc	3780
gcggaacccc	tatttggtta	tttttctaaa	tacattcaaa	tatgtatccg	ctcatgagac	3840
aataacccgt	ataattgctt	caataatatt	gaaaaaggaa	gagtatgagt	attcaacatt	3900
tcogtgtcgc	cccttatccc	tttttcggg	cattttgcc	tcctgttttt	gtcaccagc	3960
aaacgctggt	gaaagtaaaa	gatgctgaag	atcagttggg	tgacagagtg	gggtacatcg	4020
aactggatct	caacagcggt	aaagatccctg	agagttttcg	ccccgaagaa	cggtttccaa	4080
tgatgcgac	gcgcagcac	ctgctatgtg	gcgcggtatt	atcccggtgt	gacgcgggc	4140
aagagcaact	cggctgcgcg	atacactatt	ctcagaatga	cttggttgag	tactcaccag	4200
tcacagaaaa	gcactctacg	gatggcatga	cagtaagaga	attatgcagt	gctgcctata	4260
ccatgagtga	taacatctgc	gccaaacttac	ttctgacaa	gatccggaag	ccgaaggagc	4320
taaccgcttt	tttgacaaac	atgggggatc	atgtaactcg	ccttgatcgt	tggaaccg	4380
agctgaatga	agccatacca	aacgcgagc	gtgacaccac	gatgcctcca	gcaattggcaa	4440
caacgttgcg	aaactatta	actggcgaa	tacttactct	agcttcccg	caacaattaa	4500
tagactggat	ggaggcggat	aaagtgtcag	gaccacttct	gcgctcgcc	cttccggctg	4560
gctgggttat	tgctgataaa	tctggagccg	gtgagcgtgg	gtctcgcggt	atcattgcag	4620
cactcggggc	agatggtaag	ccctcccgta	tcgtagtatt	ctacacgacg	gggagtcagg	4680
caactatgga	tgaacgaaat	agacagatcg	ctgagatagg	tgccctactg	attaagcatt	4740
ggtaactgtc	agaccaagtt	tactcatata	tacttttagt	tgatttaaaa	cttcattttt	4800
atttataaag	gatctagggtg	aaagatccctt	ttgataactc	catgaccaaa	atcccttaac	4860
gtgagttttc	gttccactga	gcgtcagacc	ccgtagaaaa	gatcaaagga	tcttcttgag	4920
atcctttttt	tctgcgctga	atctgctgct	tgcaaacaaa	aaaaccacgc	ctaccagcgg	4980
tggtttgttt	gcgggatcaa	gagctaccaa	ctcttttttc	gaagggtaac	ggcttcagca	5040
gagcgcagat	accaaatact	gtcctcttag	tgtagccgta	gttaggccac	cacttcaaga	5100
actctgtagc	accgcctaca	tacctcgctc	tgctaactct	gttaccagtg	gctgctgcca	5160
gtggcgataa	gtcgtgtctt	accgggttgg	actcaagacg	atagttaccg	gataaggcgc	5220
agcggctcgg	ctgaacgggg	ggttcgtgca	cacagcccg	cttggagcga	acgacctaca	5280
ccgaactgag	atacctacag	cgtgagctat	gagaaagcgc	cacgcttccc	gaagggagaa	5340
agcgggacag	gtatccggta	agcggcaggg	tcgggaacgg	agagcgcacg	agggagcttc	5400
cagggggaaa	cgccctggat	ctttatagtc	ctgtcgggtt	tcgccacctc	tgacttgagc	5460
gtcgattttt	gtgatgctcg	tcaggggggc	ggagcctatg	gaaaaacgcc	agcaacgcgg	5520
cttttttacg	gttctctggc	ttttcgtggc	cttttgctca	catgtttctt	cctgctgtat	5580
ccctctgatt	tgtggataac	cgtattaccg	cctttgagtg	agctgatacc	gctcgcgcga	5640
gcccaacgac	cgagcgcagc	gagtcagtga	gcgaggaagc	ggaagagcgc	ctgatgcggg	5700
attttctctc	tacgcatctg	tacgttattt	cacacccgat	atggtgcact	ctcagttcaa	5760
tctgctctga	tgccgcatag	ttaagccagt	atacactccg	ctatcgctac	gtgactgggt	5820
catggctcgc	ccccgacacc	cgccaacacc	cgctgacgcg	ccctgacggg	cttgtctcgt	5880
cccgcatccc	cttcacagac	agctggtgac	cgctccggg	cgctcatctg	cttgagggtt	5940
ttaccgcgca	tcaccgaaac	gcgcgagga	gctgcggtaa	agctcatcag	cgtggtcgtg	6000
aagcgattca	cagatgtctg	ctcgttcate	cgcgccagc	tcgttgagtg	tctccagaag	6060
cgttaatgtc	tggttctctga	taaaagcggc	catgttaagg	gcggtttttt	ctcgtttggt	6120
cactgatgcc	tcogtctaag	ggggatttct	gttcatgggg	gtaatgatac	cgtatgaacc	6180
agagaggatg	ctacgatata	gggttactga	tgatgaacat	gcccggttac	tggaacgttg	6240
tgagggtaaa	cactcggcgg	tatggatgcg	gcgggacag	agaaaaatac	ctcagggtca	6300
atgccagcgc	ttcgttaata	cagatgtagg	tgttccacag	ggtagccagc	agcatcctgc	6360
gatgcagatc	cggaacataa	tggtgcagg	cgctgacttc	cgcgtttcca	gactttacga	6420
aacacggaaa	ccgaagacca	ttcatgttgt	tgctcaggtc	gcagacgttt	tgacagcaga	6480
gtcgtctcac	gttcgctcgc	gtatcgtgtg	ttcattctgc	taaccagtaa	ggcaaccccg	6540
ccagcctagc	cgggtcctca	acgacaggag	cacgatcatg	cgcacccgtg	gccaggaccc	6600
caacgtgccc	gagatgcgc	gcgtgcggct	gctggagatg	gcggacgcga	tggatattgt	6660

ctgccaaaggg	ttggtttgcg	cattcacagt	tctccgcaag	aattgattgg	ctccaattct	6720
tggagtgggtg	aatccgttag	cgagggtgccg	ccggcttcca	ttcagggtcga	gggtggcccg	6780
ctccatgcac	cgcgacgcaa	cgcgggggagg	cagacaagggt	atagggcgccg	gcctacaatc	6840
catgccaaacc	cgttccatgt	gctcgcgcgag	gcggcataaaa	tgcgcgtgac	gatcagcggt	6900
ccagtgatcgc	aagttaggct	ggtaagagacc	gcgagcgatc	cttgaagctg	tcctgatagg	6960
tcgatcatcta	cctgctggga	cagcatggcc	tgcaacgcgg	gcatcccgat	gccgcgggaa	7020
gcgagaagaa	tcataatggg	gaaggccatc	cagcctcgcg	tgcggaacgc	cagcaagacg	7080
tagccccagcg	cgtcgcccg	catgccggcg	ataatggcct	gcttctcgcc	gaaacgcttg	7140
tgggcggggac	cagtgacgaa	ggccttgagcg	agggcggtgca	agattccgaa	taccgcaagc	7200
gacaggccga	tcacgtcg	gctccagcga	aagcggtcct	cgccgaaaaa	gacccagagc	7260
gctgcccggca	cctgtccctac	gagttgcatg	ataaagaaga	cagtcataag	tcgcgcgacg	7320
atagtcatgc	cccgcgcaca	ccggaaggag	ctgactgggt	tgaaggctct	caagggcatc	7380
ggtcgacgct	ctcccttatg	cgactcctgc	attaggaagc	agcccgatg	taggttgagg	7440
ccgttgagca	ccgcgcgcgc	aaggaatggt	gcatgcaagg	agatggcgcc	caacagctcc	7500
ccggccacg	ggcctgccac	catacccacg	ccgaaacaag	cgctcatgag	cccgaagtgg	7560
cgagcccgat	cttccccatc	ggtagatg	gcgatatagg	cgccagcaac	cgcacctgtg	7620
gcgcgggtga	tgccggccac	gatgcgtccg	gcgtagagcg	ccacaggacg	gggtggtcg	7680
ccatgatcgc	gtagtcgata	gtggtctcaa	gtagcggaagc	gagcaggact	gggcggcgcc	7740
caaagcggtc	ggacagtgt	ccgagaacgg	gtgcgcatag	aaattgcac	aacgcataata	7800
gcgctagcag	cacgccatag	tgactggcga	tgctgtcgga	atggacgata	tcccgcgaaga	7860
ggcccgccag	taccggcata	accaagccta	tgccctacagc	atccagggtg	acgggtgccga	7920
ggatgacgat	gagcgcattg	ttagatttca	tacacgggtgc	ctgactgcgt	tagcaattta	7980
actgtgataa	actaccgcac	taaagctttg	cttaggagtt	tcctaataca	tcccaaaactc	8040
aatatataaa	gcatttgact	tggtctatgc	cctaggggga	ggggggaagc	taagccagct	8100
ttttttaaca	tttaaaatgt	taattccatt	ttaaatgcac	agatgttttt	atttcataag	8160
ggtttcaatg	tgcatgaatg	tcgcaatatc	ctgttaccaa	agctagtata	aataaaaaata	8220
gataaacgtg	gaaattactt	agagttttctg	tcattaacgt	ttccttctctc	agttgacaac	8280
ataaatgcgc	tgctgagaag	ccagttttga	tctgtcagga	tcaatttcca	ttatgccagt	8340
catattaatt	actagtcaat	tagttgattt	ttgacatata	catgtgaa		8388